

**Questions and Answers
Concerning**

**IMPACT OF THE CURRENT ENERGY SITUATION
ON WASHINGTON STATE'S ECONOMY**

April 13, 2001

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Overview

Energy prices in Washington and other western states have risen sharply over the last year and a half. Wholesale electricity prices have risen in response to a variety of factors, ranging from poor hydro conditions to supply problems stemming from California's electricity restructuring policies. These higher wholesale prices are slowly finding their way into retail rates, and will likely increase electric bills for years to come. Higher natural gas prices have already been passed through to retail customers.

The impacts of higher energy prices on Washington's citizens and economy are not always clear. In the short term, rising energy costs and tightening supplies can be expected to contribute to slower overall growth. However, by itself, the energy situation is not likely to cause a serious economic downturn if conservation measures and efforts to address supply problems are successful.

The longer-term impact is somewhat less certain. It will depend on many factors including the sufficiency of rainfall for hydropower, construction of new power plants, moderation of natural gas prices, stabilization of the California energy market and the level of future demand.

The region is also facing increased risk of short-term electricity supply disturbances that could lead to forced curtailments such as rolling blackouts. While the best analysis shows that the region is likely to have sufficient resources to meet demand for electricity this summer, tight reserve margins mean that unexpected contingencies such as the loss of key generators or transmission lines could lead to temporary supply problems. Moreover, if reservoirs cannot be refilled to normal levels at the end of the runoff season, the risk of supply shortfalls will carry over into the winter of 2000-2001.

Energy dependent industries, such as aluminum, are the most vulnerable to higher energy prices. Nearly all of Washington's aluminum smelters have shut down temporarily either to avoid high electricity prices or to remarket federal power. Other industries have been or will be affected to varying degrees by higher costs and accompanying declines in consumer spending.

Residential users of natural gas across Washington are paying significantly more than they were two years ago. Some residential users of electricity also are paying more – because their utilities have been forced to buy power on the spot market.

Expenditures on electricity and natural gas now comprise about 2.3 percent of household spending, and are expected to rise to an average of 2.8 percent over the next two years. Consumers on fixed incomes will feel the most impact. Over the next few years, Washington's electric rates are still likely to be lower than rates across the nation, while natural gas rates may be higher. To the extent that Washington's economy is based on the advantages of low cost power, becoming an average-cost state could mean economic dislocations and adjustments.

Following are answers to 13 basic questions about the economic impact of the energy crisis on Washington State. These answers likely will change to reflect changing circumstances and will be updated when appropriate. Additional questions and answers will be added as other issues arise.

1. What has happened to energy prices in Washington?

Electric: Electric power prices began to rise in May 2000, initially in response to lower-than-expected hydro conditions in California and the Northwest. Prices spiked higher in June due to hot weather in the Southwest, dropped off in July and spiked again in August amid allegations of collusion and manipulation by generators and power marketers in the California energy market. The monthly average index price at the bilateral Mid-Columbia trading hub peaked at \$170/MWh (Megawatt-hour) in August. Prior to the price spikes, prices averaged less than \$40/MWh. Shortly before Thanksgiving, daily prices rose above \$200/MWh in response to the season's first cold weather, lack of water in Northwest rivers and an ongoing lack of supplies from California.

Prices mostly have remained at that level since November. Prices peaked at over \$3000 per MWh for heavy-load hours on December 11, averaged \$400 per MWh for that month and have averaged over \$200 during the first few months of 2001. As a result of the current drought, substantial relief from high prices may not come until spring, 2002.

Natural Gas: Retail natural gas prices have gone up more than electricity prices over the last two years. Unlike electricity, where utilities serve their customers through a combination of owned resources and purchased power, natural gas utilities purchase the vast majority of their supply from wholesalers at market-indexed prices. Utilities employ "purchased gas adjustment" (PGA) mechanisms that allow for almost automatic pass-through of gas purchasing costs to retail customers.

Natural gas prices began to rise in May 2000, roughly at the same time as electricity prices, and rose throughout the summer as much more natural gas was being used to generate electricity than normal due to low hydro production. Gas prices spiked to

unprecedented levels in late fall when the California electricity market began to implode. Daily prices went as high as \$50/MMBtu (millions of British Thermal Units) in December at Sumas hub, more than double previous highs, and a weighted index price for December came in at \$17, more than three times the previous high.

2. What is the impact of the drought on electricity supply and price?

Roughly three-fourths of the electricity in the Northwest is provided by hydroelectric power. Washington is currently experiencing the second worst water year in recorded history (72 years). The drought directly impacts the amount of generation that our hydroelectric dams can produce. Both streamflows and snowpack are both at roughly half of average levels. The low streamflows affect current hydroelectric generation and the low snowpack will affect both hydroelectric generation in the summer and storage of water to meet loads in the winter of 2001-2002. Streamflows in the Columbia River are forecast to be about half of normal this summer because of the low snowpack.

Historically, when water in our rivers has been below normal, and during those months when the rivers normally run at their lowest levels, the loss of generation was off-set by purchases of power, primarily from California. That power was unavailable during the winter of 2000-2001, and is unlikely to be available over the next few years as a result of ongoing problems in California's electricity market. Washington's utilities have only been able to buy power at extremely high prices on the wholesale market. Generation reductions caused by the drought have further exacerbated those high wholesale prices, putting financial pressure on both utilities and their customers.

Although electricity prices currently remain high, power is still available on the market. The possibility does exist, however, that high summer demand in California and low water in the Northwest could result in a West Coast power shortfall. If the drought persists, so too does the power sufficiency problem. According to a recent report released by the Northwest Power Planning Council, a persistent drought may reduce generating capability in the Northwest from March through August by the equivalent of four times the power consumed by Seattle in a year.

3. Whose rates are changing in Washington as a result of the current energy crisis?

Whose electric rates have already increased?

At least seven public utilities have announced or enacted retail rate increases between 10 percent and 58 percent as a result of their exposure to the wholesale energy markets. The following table summarizes those known increases:

Electric Rate Increases Enacted or Announced by Washington Utilities by 2/1/01

Utility	Effective Date	Average Increase*
Cowlitz PUD	10/1/2000	30%
Tacoma Power	12/20/2000	58%
Seattle City Light (1)	1/1/2001	10%
Seattle City Light (2)	3/1/2001	19%
Snohomish PUD	1/1/2001	35%
Grays Harbor PUD	1/1/2001	21%
Clark PUD	1/15/2001	24%
Peninsula Power & Light	4/1/2001	27%

* Reflects weighted average of residential, commercial and industrial increases

Retail rates of Washington's three investor-owned utilities (IOUs) have not changed as a direct result of the current energy situation. However, two of the IOUs – Puget Sound Energy (PSE) and PacifiCorp – have had small rate changes in 2000 and 2001 as a result of previously determined longer-term rate plans.

The largest rate impacts have been felt by retail electric customers that are directly exposed to market rates. These include direct service customers of BPA, primarily aluminum smelters and wood products companies, that are facing higher prices for that portion of their supply purchased directly from the market, and customers of Puget Sound Energy (PSE) and Tacoma Power that are served on either Schedule 48 tariffs (rates tied to market prices) or special contracts at market rates. Impacts on these customers are discussed in more detail below.

Whose electric rates may increase in the future?

The Bonneville Power Administration (BPA) has announced that it will significantly raise the rates it charges utilities when new power sales contracts take effect on October 1, 2001, due to high market prices. While BPA's actual rates probably won't be known until June, BPA has warned that wholesale rates could rise by more than 100 percent for the 2001-2006 rate period. In April of this year, BPA announced that without action, the first-year increase could be as high as 250 percent or more. Rate increases are likely to be larger in the first two years of the new contracts, and smaller in the last three years. BPA is actively seeking to reduce the amount of power it needs to buy in the market by buying out customer rights to power, pushing the river as hard as it can without seriously endangering fish and encouraging its customers to reduce their loads.

BPA sells cost-based wholesale power to every publicly owned utility in the state, and to certain industrial customers known as "Direct Service Industries." BPA also provides power and financial benefits to residential and small-farm customers of investor-owned utilities. Because of the broad distribution of federal power benefits, any BPA rate increases will affect virtually every utility in the state and could cause general rate increases of 10 percent to 30 percent. Commercial and industrial customers of the investor-owned utilities receive no benefits from BPA power and may not be directly affected by the BPA increase. Additionally, the handful of public utilities that signed

“pre-subscription” contracts with Bonneville will also be exempt from short-term rate increases.

Nearly every electric user in the state is vulnerable to retail rate increases caused by high wholesale energy prices. Two of the three investor-owned utilities, PSE and PacifiCorp, have negotiated fixed rates through the end of the year. PSE has been in a “rate stability” period designated in its merger proceeding before the WUTC some years ago. That period ends after December 2001. The company may request rate relief at that time, depending on resource need.

In a recent rate case before the WUTC, PacifiCorp negotiated for a 3 percent rate increase in 2001, 2 percent in 2002 and fixed through 2004. The company has, however, been exposed to wholesale markets for less than 10 percent of its load in the past few months, and has not ruled out “emergency” rate relief in Washington. Avista, too, has been exposed to the wholesale energy market, and has been deferring costs associated with those purchases. Avista has filed a proposal with the WUTC to address recovery of those deferred costs.

Whose natural gas rates have already increased?

Customers of Washington’s natural gas utilities received rate increases of 10 percent to 17 percent in January 2000, 12 percent to 38 percent in August/September 2000, and 26 percent to 31 percent in November 2000 through “purchased gas adjustment” (PGA) mechanisms in place at each of the gas utilities. PGA mechanisms allow for the near-automatic pass-through to end-use customers of wholesale natural gas costs incurred by utilities. By January 2001, residential natural gas rates had nearly doubled in a year’s time for most Washington consumers. These costs have been substantially higher in 2000 and 2001 for a variety of reasons including: greatly increased use of natural gas for electricity generation on the West Coast; generally tighter supplies across the continent; and improved pipeline links between supply basins in the Rocky Mountains and Western Canada and major markets in the Midwest and Northeast. And that has caused more competition for supplies that have traditionally served the Northwest.

Whose natural gas rates may increase in the future?

Wholesale natural gas prices have dropped significantly since peaking in December. If this trend holds, further increases in retail natural gas rates are unlikely and retail rates may actually fall. However, the direction of natural gas prices is subject to a great deal of uncertainty and additional rate increases are not out of the question. Some industry experts expect continued turmoil in western electricity markets to cause natural gas prices to rise again starting this summer.

4. How do the rate increases in Washington compare to increases in other states?

Electric: Unless rates rise faster than currently expected, average electric retail rates in Washington between 2000 and 2002 would likely remain lower than U.S. average retail rates. The table below is a simple illustration of possible increases for the three retail customer classes by 2002. The table shows both the current rank of those rates relative to all other U.S. states and the rank in 2002 following rate increases projected by OTED staff. In the calculation of these numbers, Washington's assumed rate increases were applied to Oregon's rates, and the rates in all other states were assumed to increase by 5 percent per year.

Washington's Average Electric Retail Rates Compared to Average U.S. Retail Rates

Sector	Assumed Increase 2000-2002	WA's Rank in 2000	WA's Rank in 2002	Rate compared to US, 2000	Rate Compared to US, 2002
Residential	23%	1	3	39% lower	32% lower
Commercial	17%	4	11	31% lower	24% lower
Industrial	52%	19	26	10% lower	Same as US
All Sectors	33%	4	8	31% lower	23% lower

Natural Gas: The following table shows assumed increases in natural gas prices for the three types of retail customers by 2002, both the current rank of those rates relative to all other U.S. states and the rank in 2002 following the increases. Although rates have increased throughout the U.S., the Northwest has been more affected than the rest of the country. It is not certain that this will continue to be the case because wholesale prices in the Northwest have fallen back in line with prices elsewhere in the country. For these projections, national gas prices were assumed to increase at half the Washington rate.

Washington's Avg. Natural Gas Retail Rates Compared to Avg. U.S. Retail Rates

Sector	Assumed Increase 2000-2002	WA's Rank in 2000	WA's Rank in 2002	Rate compared to US, 2000	Rate Compared to US, 2002
Residential	44%	23	34	5% lower	12% higher
Commercial	60%	22	40	Same as US	23% higher
Industrial	95%	4	27	17% lower	10% higher

5. What are the short-term overall risks of the current energy situation to the economy?

In the next two to three years, the energy crisis is likely to contribute to slower growth in the regional economy, but is unlikely, by itself, to cause a serious economic downturn. Under a relatively pessimistic set of assumptions, annual average job growth would decline one half a percentage point per year, from about 1.7 percent (projected before the onset of the energy price hikes) to 1.2 percent annual job growth. The more likely impact is a slowdown in job growth of between 0.1 percent and 0.3 percent annually. This assumes that energy conservation, new generation, economic diversification and other measures to address supply shortages show effects over the next two to three years. An increase in local inflation on the order of 0.3 percent to 0.6 percent point in CY 2001 and CY 2002 is another likely short-term impact of rising energy prices.

The impact of higher electricity and natural gas prices on the economy shows up mainly as a loss of disposable income to households *and a drop in output by businesses that compete in national or international markets.* The best available predictions show a rise in average household energy costs – including both electricity and natural gas -- of about 25 percent to 35 percent between January 2000 and January 2002. This translates into a \$600 million to \$700 million annual loss in disposable income. (This excludes any impact from changes in the prices of gasoline, home heating oil, or propane). Since nearly all of the increased expenditures on energy are being paid to out-of-state producers and wholesalers, the Washington economy receives very little of the benefits of higher energy prices. In the longer run, if supply problems persist, fewer businesses will be able to afford to expand or locate in Washington. However, current projections are that Washington will continue to enjoy electricity prices that are lower than the rest of the country.

The major short-term economic risk of the energy crisis in California and the Northwest is that it can interact with other factors to push the economy into recession. Consumers, who already are showing loss in confidence due to a weakening stock market, spikes in oil prices and high profile job layoffs, could retrench further due to rising energy costs. A national economy that grew only 1.1 percent in the last quarter of 2000 and a local economy that has recently lost billions of dollars in paper wealth are vulnerable to further erosions in consumer confidence.

Other major short-term economic risks of the energy crisis are more specific and localized. The region's aluminum industry (which represents less than 0.5 percent of the gross state product in Washington) and other heavy industrial users of electricity are projected to see electricity prices increase 50 percent by 2002. Natural gas prices are projected to jump by 100 percent. The vulnerability of energy intensive industry sectors also poses significant risks to particular communities in the state.

Before recent spikes in energy prices, average electricity prices in Washington were 30 percent to 40 percent below the national average. Prices here would have to climb 50

percent to 60 percent across the economy for residential and commercial rates to exceed the national average. Although this is possible, the best available predictions are for average increases in the 25 percent to 35 percent range over the next two to three years. Even with a one-third increase, electricity prices *in real, inflation-adjusted terms* would approximately equal prices paid in the early 1960s and early 1980s. However, Washington's economy is based in part on the advantages of low cost power. Becoming an average cost state would mean economic dislocations and adjustments.

6. What are the medium- to long-term risks of the current energy situation to the economy?

The longer-term effects of the crisis are uncertain and involve several "ifs." If precipitation in the winter of 2001/2002 is normal or above normal, and if several new gas-fired power plants are brought on line by summer of 2002 in California or the Northwest, and if the plants are accompanied by concomitant increases in the ability to deliver natural gas to the west coast, then power and gas prices could return to "normal" levels sometime in 2002. Affected companies such as aluminum smelters could then return to operation on at least a limited basis, and the only lasting consequences would be from repayment of financed 2001-2002 expenses. However, if additional generating capacity is slow to come on line, or if the natural gas delivery infrastructure is slow to expand, or if new gas fields are not developed to supply new generators, or if demand for electricity grows at higher-than-expected rates, high energy prices could be with us for a number of years.

One plausible scenario is a reawakened commitment to conservation and renewable energy such as wind power combined with construction of new gas-fired generation by 2003. In this scenario, electricity prices would stay somewhat higher than historical levels as the cost of these investments is borne by ratepayers over a number of years, but would be lower than other scenarios in which new investment is slow to materialize. Natural gas prices would likely also stay higher than historical levels as new gas-fired generators raise the bidding for limited supplies of natural gas.

The economic impacts of the energy situation are discussed more specifically in subsequent questions and answers.

7. How do these rate increases affect Washington's "average" household?

Electricity and natural gas uses on average currently account for about 2.3 percent of household spending budgets. The burden for the elderly (age 65+) and low-income (annual income less than \$10,000) households is about 1 percentage point higher. The rate increases in 2000 and the planned, higher charges over the next two years will boost combined electricity and natural gas spending to about 2.8 percent of the average

household consumption budget. The impact on the elderly and low-income households will likely be about 4.9 percent and 5.2 percent, respectively.

In 1999, Washington households spent an average total of \$880 per household on electricity and natural gas. The rate increases, already implemented and planned over the period 2000-02, will raise total annual electricity and natural gas expenditures to around \$1,130 per household. Natural gas rates for commercial and industrial customers have risen 70 percent and 95 percent, respectively, since January 2000 and electricity rates are expected to rise an average of 17 percent for commercial customers and 52% for industrial customers by 2002. Businesses are likely to pass, at least partially, the increased costs to consumers, heightening local inflation and adding burdens to the consumption budget of Washington residents.

The following table depicts the potential impacts of known rate increases on “average” residential electric bills for four types of electric utilities based on some very simple projections by the Office of Trade and Economic Development (OTED) staff. “Average bills” for customers of each utility are shown for 2000, 2001, and 2002. Rate increases applied to the 2001 and 2002 average bills are also shown. As indicated in the table, average bills are higher for customers in rural areas of the state primarily served by COOPs (consumer or cooperatively owned “public utilities”) and some Public Utility Districts (PUDs), mostly because low population density makes local distribution networks costlier to construct and maintain. In addition, rural customers tend to use more electricity for heating because gas is not as available in rural areas. Urban customers use more gas, but are exposed to gas price increases not experienced by rural customers.

Average residential monthly electric bills for selected utilities

Utility	2000 Avg. Bill	2001 Rate Increase	2001 Avg. Bill	2002 Rate Increase	2002 Avg. Bill
IOU (PSE)	\$64.52	1.5% (01/01/01) 23% (10/01/01) ¹	\$66.29		\$71.46
PUD (Grays Harbor)	\$64.92	15% (01/01/01) 23% (10/01/01) ¹	\$78.42	-15% (07.01/02) ²	\$84.69
Municipal (Seattle)	\$37.97	9% (01/01/01) 18% (03/01/01) 13% (10/01/01) ¹	\$48.46	-9% (07/01/02) ²	\$51.42
Coop (Columbia REA)	\$86.45	25% (10/01/01) ¹	\$91.97		\$107.65

¹ Pass-through of BPA increase

² Assumed repeal of 2001 rate surcharge (speculative)

The following table shows average monthly bills for each of Washington’s four retail natural gas providers for January 1999 and after rate increases in January 2000, September 2000 and November 2000. The cumulative percentage increases for each of the months are also shown.

Average Residential Natural Gas Bills in Washington

	Average Monthly Gas Bill				Percent Increase Since January, 1999		
	Jan-99	Jan-00	Sep-00	Nov-00	Jan-00	Sep-00	Jan-01
Puget Sound Energy	\$40.64	\$47.38	\$61.23	\$77.45	17%	51%	91%
Avista	\$26.91	\$30.59	\$42.21	\$55.48	14%	57%	106%
Cascade Natural Gas	\$36.92	\$40.57	\$45.47	\$59.74	10%	23%	62%
Northwest Natural Gas	\$31.83	\$36.21	\$49.17	\$49.17	14%	54%	54%

8. How long will these higher rates last?

The effects from historically low streamflows in 2001 and historically high wholesale energy prices are likely to be felt for at least several years. Spring/summer streamflows in the Columbia River are forecast to be around 55 percent of normal from April through July due to extremely low snowpack. If sufficient power cannot be purchased on the wholesale market, Northwest reservoirs may not be refilled to levels required to provide assurance of sufficient power during the winter of 2001-2002. Even if sufficient power can be purchased, it is likely to be extremely expensive, adding to the financial burden faced by Bonneville and its customers. Many other Northwest utilities face supply problems due to lack of hydro generation at their own projects. Combined with the electricity supply crisis in California, this lack of power supply means that wholesale power prices will remain at extremely high levels at least through the end of the summer.

Utilities and customers that are exposed to market prices are responding by implementing emergency energy conservation programs, running existing natural gas-fired generators at full capacity and by adding new gas or diesel-fired generators as rapidly as possible. This response to lower-than-average hydroelectricity production in 2000 has already pulled natural gas prices to historic levels, and the pressure on natural gas markets could be greater in 2001. Gas prices are unlikely to abate very much as long as electricity prices remain high.

The extent and duration of the effects on retail customers are still uncertain. Bonneville announced in February that it expects to significantly raise wholesale rates it charges utilities on October 1, 2001, although the size of the actual rate increase likely won't be known until summer. Bonneville expects its rates to come down beginning in late 2003, but this is contingent upon return to normal hydropower operation or power market conditions moderating to some extent. Some publicly owned utilities are intending to insulate their customers from the most extreme rate increases by issuing bonds to finance current power market expenses. This means that customers experience lower impacts in the current year, but the effects will linger for a number of years as the bonds are repaid.

9. What industries in Washington are most at risk?

Washington industries that are exposed to wholesale electricity prices, and those that are energy-dependent, are currently at high risk. The state's largest energy-dependent sectors include pulp, paper, lumber, food processing and refrigeration, petroleum, aluminum and aerospace. Many of the largest energy-dependent companies purchase power either directly on the wholesale market or at wholesale market rates. BPA serves part of the loads of nine direct service industries (DSIs): seven aluminum smelters (one has shut down and is unlikely to reopen); and two wood product mills. All of the DSIs are off of BPA's system until at least October 1 and BPA is planning to buy them out for the first two years of the new rate period. A recent industry analysis indicates that \$35/MWh is the point at which no smelter in the region will be profitable. It is unknown how much power, if any, BPA will be able to make available to DSIs at those prices. If the situation doesn't get markedly worse, companies will try to avoid permanent decommissioning and may be able to restart potlines in 2003, depending on market conditions. Also, some companies also have specific circumstances which make them more likely to survive. For example, one DSI is served partly by a public utility at current rates lower than BPA's rates, and two others are formulating plans to generate their own power. The governor's legislative package contains some tax breaks to assist in that process.

PSE has fourteen large electricity users that take service under a special "market rate" tariff (Schedule 48) or under a special contract with market wholesale rates. These customers have been directly exposed to the high market rates. PSE's market-rate customers include a petroleum refinery, a wood products mill, a microchip company, an aerospace company and a refrigeration company – to name a few. Schedule 48 is set to expire at the end of this year. However, a settlement was reached that will allow Schedule 48 customers to negotiate directly with wholesale power suppliers and rely on PSE solely for distribution of that power. These customers will still be exposed to market prices, but will have greater flexibility to negotiate the terms and conditions of their power supply arrangements. The effect of this settlement on the long-term future of these companies is unknown, and depends on conditions in the wholesale power market.

Tacoma Power also has four industrial customers exposed to the wholesale market, including two wood product mills. Two of these customers have substantially curtailed operations, and one, a pulp and paper mill, has shut down completely.

Because agriculture is one of the most stressed industries in the state already, the impacts of the current energy situation are particularly difficult. Higher electricity prices affect irrigation pumping and food processing and the drought will limit water available for irrigation. High natural gas prices drive up the prices for fertilizer and also affect food processing.

In addition to its effects on existing firms, the energy situation may affect potential industry growth in Washington. For example, electricity availability, price and regulatory treatment will affect the economics of "server farms," which in turn will influence future Internet economy business growth. Current expansion plans by

semiconductor manufacturers and related firms in Clark County depend on significant electricity use. Energy costs may affect overall costs for firms exploring the possibility of siting new facilities in the state.

10. What are the impacts of these rate increases on employment?

Aluminum

The principal impacts have been on the DSIs in the aluminum industry. Total aluminum industry employment in 1998 was 7,500. A variety of factors have affected industry employment in the past few years, including labor-management disputes, energy costs and world market conditions.

High electricity prices have resulted in the temporary shutdown of all but one smelter, ALCOA's Wenatchee facility. Vanalco (Vancouver) closed late last year and is unlikely to reopen. All other smelters are out of production, and some have been able to remarket federal power at a substantial profit. They are compensating employees through October. Current industry payrolls total 6500, including workers who are being compensated while power is remarketed.

Although these firms represent a large share of the state's electricity load (about 15 percent), they represent only 0.2 percent of Washington State employment. Therefore, it is local impacts that will be significant, especially for those plants in non-urban settings. However, it is not clear yet to what extent fabricators and other businesses in the state that purchase raw materials from the aluminum sector would be affected by a lengthy or permanent loss or decline in local aluminum production.

Looking forward, a BPA analysis of the aluminum industry suggests that since BPA contract power for the period 2001-2006 will be about one-half of the amount necessary for capacity operations in the Northwest, several smelters are likely to operate on a swing basis, depending on spot prices. At least two are using power remarketing revenue to pursue projects that would result in electricity self-sufficiency by 2006, while another has agreements to purchase low-priced, non-federal power and will remain open.

Aerospace

Electricity and natural gas uses represent about 0.5 percent and 0.1 percent, respectively, of total production costs of the aerospace industry. The cost shares are small, but the expected price increases for industrial users in the state are significant, averaging 50 percent and 95 percent for electricity and natural gas rates, respectively. The rate increases that Boeing has to face can be higher or lower than the averages depending on its contracts with the utility companies.

Jet orders picked up substantially last year, but Boeing has had a reported profit margin (5.2 percent in 1999) well below its 10 percent target in its commercial aircraft segment.

Cutting costs is a major strategy that is envisioned by the company to improve its bottom line.

Faced with an accelerated competition from Airbus and a maturing worldwide airline industry that gives customers enormous leverage over pricing, Boeing will likely have to absorb any cost increases to maintain market share.

Food Processors

So far, there are no reported permanent employment effects on food processors. Bellingham Cold Storage (BCS), a food and fish processor in Whatcom County, was one of 14 Puget Sound Energy customers taking service under market-based rates. BCS began to feel the effects of high market rates in summer 2000 and closed briefly. Governor Locke's declaration of an energy supply alert in August 2000 allowed BCS to arrange an energy price hedge and continue operations.

Pulp, Paper, and Lumber

Energy costs have begun to have permanent effects on pulp, paper and lumber firms, which are currently facing other market pressures. Abitibi, in Steilacoom, closed last year because of its exposure to wholesale energy prices, eliminating 172 jobs. In March, Georgia Pacific announced it would eliminate 420 jobs in Bellingham by permanently closing its pulp mill and chemical plant. The company is said to be considering the future of its adjoining tissue paper plant, which supports 330 jobs. For now, that plant will continue to operate with power provided by diesel generators. Other Georgia-Pacific mills in the region, such as the 1400-employee Camas mill, do not appear to be threatened.

Other

In early March, Pioneer Chlor-Alkali of Tacoma announced the layoff of 80 employees. Pioneer is a large industrial customer of Tacoma Power which, like Abitibi, is exposed to wholesale market prices. Praxair and Simpson Tacoma Kraft Co., the other two Tacoma Power customers with exposure to wholesale prices, have not cut back employment.

11. What are the effects of this energy situation on the credit worthiness of Washington's utilities?

Both Standard & Poor's and Moody's have downgraded Seattle City Light's bond rating. Moody's noted that drought conditions and market turbulence warranted the small step down. Low hydroelectric production and high wholesale prices have combined to create liquidity problems for Seattle City Light. The company has been forced to purchase significant amounts of electricity on the wholesale market. While part of the problem is being addressed by adopting higher rates, City Light also issued \$500 million in revenue bonds that will be repaid over several years. Tacoma Power faces a similar situation, but has thus far chosen to avoid taking on additional debt. These problems will be reduced significantly by October 1, when new BPA contracts take effect.

12. Can the state expect a revenue windfall from higher utility rates?

Similar questions have been posed to the Office of Financial Management (OFM), Department of Revenue (DOR) and the Office of the Forecast Council (OFC). It is the judgment of the research and forecasting staffs of the three agencies that the additional receipts from the state public utility tax are likely to be offset by other revenue losses as consumers spend more on utility bills and less on goods and services subject to sales and B&O taxes.

An illustration based just on the sales tax may clarify the issue. The state public utility tax on the generation and distribution of electrical power is 3.873 percent. The general state sales tax is 6.5 percent.

If a household normally spends \$1000 a year on electricity, a 30 percent increase in its utility bill would cost the household an additional \$300. About two-thirds, or \$200 of this amount, would normally be spent elsewhere in the economy on taxable goods and services. This tradeoff results in approximately \$12 more in state public utility revenues, but a possible reduction in sales tax revenue of \$13.

In the case of higher utility taxes paid by businesses, the offset due to lower spending on other goods and services is not as great. However, the net gain in general fund revenue would still be small, and is likely to be offset by the effects of higher energy prices on economic growth.

Therefore, while there is likely to be an increase in state utility tax revenues due to higher electricity prices, it is unlikely that total general fund revenues will benefit from higher utility bills.

13. Will Washington's customer's experience "rolling" blackouts similar to those that California's customers experienced in January and March?

According to the most recent assessments by Northwest Power Pool and Northwest Power Planning Council staff, the Northwest is expected to have sufficient generating resources available to avoid rotating blackouts during the summer of 2001. However, reduced generating reserves leave the region more vulnerable to contingencies such as unplanned generation and transmission outages than in past years.

Moreover, meeting summer load may require water to be released from reservoirs that would otherwise be stored to meet peak demands during the winter of 2001-2002. Under a worst-case scenario, if storage reservoirs are not refilled to near-normal levels, and if low rainfall continued into the fall of 2001, and if new generating resources are not

brought online as expected, and if winter 2001-2002 is much colder than normal, the region could face a severe power sufficiency problem in January and February of 2002.

However, some new generation has already been brought online, more is under construction and the Northwest Power Planning Council has recommended that “spill” of Columbia River water to aid migrating salmon be minimized to the greatest extent possible, which would allow storage reservoirs to refill. The extent of the risks the region will face next winter is currently uncertain.

There is an additional risk to system reliability stemming from the current situation that is worth noting. During the summer months, the current problem with low generation reserves combined with summer operating conditions that place additional stress on the power delivery system, mean that the risk of a cascading system outage affecting multiple states will be higher than in past years.

This is a contingency-driven vulnerability, meaning that the risk will depend on whether and how a variety of events such as unplanned generation and transmission outages occur, and not a resource insufficiency problem like the one that caused California’s rotating blackouts in January and March. This means that such an event cannot be predicted, nor can the potential effects be known in advance.